

ABSTRACT

Described is a superconducting composition comprising an oxide complex of the formula $[L_{1-x}M_x]_aA_bO_y$ wherein L is lanthanum, lutetium, yttrium or scandium; A is copper, bismuth, titanium, tungsten, zirconium, tantalum, niobium, or vanadium; M is barium, strontium, calcium, magnesium or mercury; and "a" is 1 to 2; "b" is 1; "x" is a number in the range of 0.01 to 0.5 and preferably 0.075 to 0.5; and "y" is about 2 to about 4. The oxide complexes of the invention are prepared by solid-state reaction procedure which produce oxide complexes having enhanced superconducting transition temperatures compared to an oxide complex of like empirical composition prepared by a coprecipitation – high temperature decomposition procedure.

With a solid-state reaction prepared oxide complex of the invention a transition temperature as high as 100° K has been observed even under atmospheric pressure.